Melanostoma dubium (Dipt.: Syrphidae) in Britain and a Key to the British Isles *Melanostoma* Species

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Verrall (1901) added *Melanostoma dubium* (Zett.) to the British lists on the basis of two females collected in the Scottish highlands by Col. Yerbury. But while he was evidently convinced that *M. dubium* (Zett.) was a valid species he was less certain of the British specimens, remarking that "until the male is found the species must remain dubious". The status of *M. dubium* in the British Isles does not seem to have been discussed since, but subsequent authors have all omitted *M. dubium* (Zett.) from the British lists. Some, as in Kloet and Hincks (1945, 1976), have gone as far as to give *M. dubium* (Zett.) as a synonym of *M. mellinum* (L.). Coe (1953) and Parmenter (1954) accredit Verrall with erecting a named variety of *M. mellinum, "M. mellinum* var. *dubium* Verr.", and do not mention *M. dubium* at all. If *"M. mellinum* var. *dubium* Verr." was mentioned in any publication prior to Coe (1953) I have failed to locate it — certainly Verrall mentions no "var. *dubium"* of *M. mellinum.*

So what is the status of *M. dubium* (Zett.) in the British Isles? In Verrall's (1901) text he says: "I only know British females and European males". Through the writings of Andersson (1970) and Kanervo (1938) the validity of *M. dubium* (Zett.) and its distinguishing characteristics, have been established. Comparing Verrall's descriptions of his *M. dubium* with *M. dubium* as described by these authors, it can be stated that Verrall's Scottish *M. dubium* females did belong to *M. dubium,* but that his "European males" did *not.* This latter point is of particular relevance, since it was due to differences between a *"M. dubium"* male from Austria and putative Scottish *M. dubium* males collected by Yerbury that Verrall concluded that the male of *M. dubium* (Zett.) had yet to be taken in the British Isles. Of his Austrian *"M. dubium"* male, Verrall (1901) says "beneath the front femora there are two yellow bristly hairs near the base, and behind there is a neat fringe of rather long black hairs ending in a long curled bristly hair as in *M. ambiguum*". It have not attempted to establish whether this Austrian male still exists, but it would seem to have been some species of *Platycheirus.* In any event, *M. dubium,* as now recognised, possesses in the male neither the basal "yellow bristly hairs" nor the apical "long curled bristly hair" alluded to by Verrall, in his description of this Austrian specimen. Neither have I located the putative males of *M. dubium* collected in Scotland by Yerbury, though Verrall's description of them as "obscurely marked, very dark legged, *M. mellinum"* would fit the real *M. dubium* male rather well.

Although the information provided by Verrall can now be seen to be in itself sufficient to establish that the real *M.*

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dubium (Zett.) does occur in the British Isles, there remains a need for a revised key to British Isles *Melanostoma* species. In particular, there is need for female *M. dubium* to be distinguished from melanic females of *M. mellinum,* since in Coe (1953) these two different taxa are combined in "*M. mellinum* var. *dubium* Ver.". I have attempted to provide such a revised key below. The characters used here to distinguish *M. dubium* are based on material of *M. dubium* collected by myself in Scotland, on material from the Verrall-Collin collection, and on features cited by Andersson (1970), Kanervo (1938) and Verrall (1901). Standing under *M. dubium* in the Verrall-Collin collection there are three separate groups of specimens. I have examined a male and a female from each group. The male and female from group 3 proved to be *M. dubium,* the other females *M. scalare* and the males *M. Mellinum* (gp. 1) and *M. dubium* (gp. 2).

Melanostoma ambiguum, sensu Coe (1935), is omitted from the key here, because Andersson (1970) has demonstrated that *M. ambiguum* is a species of *Platycheirus.* As to other European *Melanostoma,* Goeldlin (1976) has showns that *M. cingulatum* Egg. is a species of *Meligramma* and Seguy (1961) suggests that *M. pumicatum* (Mg.) is a melanic form of *M. mellinum,* though it should perhaps be noted that from Meigen's illustration of *M. pumicatum* (see Morge, 1976) it looks more like a melanic female of *M. scalare* (Fab.). This leaves *M. dubium, M. mellinum* and *M. scalare* as the only *Melanostoma* species known in Europe at present.

Key to British Isles Melanostoma species

1. ♂♂ 2
   —♀♀ 4
2. Second visible sternite twice as long as wide ..... *scalare* (Fab.)
   — second visible sternite at most one and a half times as long as wide 3
3. Tergites almost entirely white-haired, except for a few black hairs along rim of t.4; t.2 often unmarked; t.3 and t.4 with vague yellowish/greyish markings, frequently greatly obscured by the heavy grey dusting; third antennal segment nearly always all black ..... *dubium* (Zett.)
   — tergites extensively black-haired, black hairs present at least along black mid-line of all tergites and in a broad apical band across entire width of t.4; t.2 with a pair of yellowish spots (sometimes much reduced, but seemingly always discernible); t.3 and t.4 with distinct, well-defined yellowish or greenish markings, without a thick overlay of grey dusting; third antennal segment nearly always partly yellow beneath ..... *mellinum* (L.)
4. Tergites unmarked, black 5
   — tergites with yellowish markings 9
5. Humeri hairy ..... *Cheilosia* etc. (Cheilosini)
   — humeri bare 6

6. Metasternum making post-coxal bridge behind meso-coxae (see fig. 1A) ..... melanic *Platycheirus* spp.
— metasternum confined to mid-ventral area, not extending laterally to make a post-coxal bridge (see fig. 1B) 7
7. Frontal dust-spots very small, deeper than wide, reaching furthest across frons at their upper ends, where about three-quarters of width of frons remains quite undusted, shining black ..... *mellinum* (L.)
— frontal dust-spots larger, as wide as deep or wider than deep, reaching furthest across frons slightly above their mid-point, where at most only about half of width of frons remains undusted, shining black 8
8. Third antennal segment about twice as long as deep; abdomen (from tip of t.1 to tip of t.5) usually longer than head + thorax (from central prominence to tip of scutellum); antennal segments 1-2 usually largely yellow; antennal segment 3 usually yellow below ..... *scalare* (Fab.)
— third antennal segment less than one and a half times as long as deep; abdomen (from tip of t.1 to tip of t.5) shorter than head + thorax (from central prominence to tip of scutellum); antennal segments 1-2 all-black; antennal segment 3 usually all-black ..... *dubium* (Zett.)
9. Arista with short hairs for entire length; frontal dust-spots occupying more than half the width of the frons at their maximum extent ..... *scalare* (Fab.)
— arista bare on basal quarter; frontal dust-spots occupying no more than a quarter of the width of the frons at their maximum extent ..... *mellinum* (L.)

In the British Isles both *M. mellinum* and *M. scalare* are polyvoltine and well-nigh ubiquitous. As Coe (1953) points out, both species exhibit a confusing range of variation in abdominal shape, particularly in the females. Both species are also rather variable in size, though *M. scalare* is generally the larger of the two. Most of the characters used to distinguish these species are in fact rather variable, the third antennal segment sometimes being uncharacteristically short and or all-black in *M. mellinum,* for instance. Leg colour varies extensively, thus while *M. scalare* usually has predominantly yellow femora, specimens occur in which all the femora are nearly entirely black. A further complication is that the male genitalia of all three *Melanostoma* species appear to be virtually identical. In the face of these difficulties I doubt that the key provided here will always work — certainly it would be useful if an improved version could at some time be produced. However, the key does work with all the material at my disposal and in particular I believe it will serve to distinguish *M. dubium* from the other two species, including melanic specimens. In my experience, melanic *Melanostoma* specimens are always female, or intersexes.

Assuming the interpretation of *M. dubium* followed here is correct, then Coe's (1953) "*M. mellinum* v. *dubium* Verrall"

is a hybrid concept, embracing at least melanic *M. mellinum* females and typical *M. dubium* females. Indeed, as defined by Coe, "*M. mellinum* v. *dubium*" would also include melanic females of *M. scalare* (which do occur), males of *M. dubium* and some males of *M. mellinum,* perhaps. Since "v. *dubium*" was apparently wrongly accredited to Verrall anyway (I do not know whether Coe was the first author to use this term) and *M. dubium* has been re-established as a distinct species, the term "*M. mellinum* v. *dubium* Verrall" is now totally meaningless. Luckily, in case there was ever a need to ascribe varietal status to melanic females of *M. mellinum,* a more appropriate alternative to Coe's (1953) "*M. mellinum* v. *dubium* Verrall" is available, in v. *melanatus* Kan., defined by Kanervo (1938).

Melanostoma dubium (Zett.)

To the characters used in the key could be added the following features, to help characterise the species (though most of them are shared with either *M. mellinum* or *M. scalare*):

♂: third antennal segment less than one and a half times as long as deep; frons dusted above lunule, but somewhat shining; face wider than maximum width of an eye, mesonotal hairs uneven in length, in length up to as long as hairs on frons; pleura entirely, but lightly, dusted greyish, except for hypopleura, which are undusted and brightly shining; all femora black at base; fore and mid femora with a posterior fringe of very dark, grey hairs.

♀: face thinly grey-dusted all over, except for actual central prominence; frontal dust-spots frequently extending inwards to make a complete, narrow, band of dusting across frons; sides of mesonotum thinly dusted greyish; pleura thinly dusted greyish, except often the mesopleura, which can have an undusted strip; hind femora usually black at base; abdomen entirely whitish-haired.

Verrall (1901) records *M. dubium* as collected at 3,000 ft. on "Grey Fell" in Perthshire (Scotland). To this record I can add the following: ♂♀ 11th June 1934, Pen-y-ghent, Yorkshire, J. E. Collin. ♂♂ ♀♀ 4th July 1962, at 2,500 ft. on Beinn a'Chuallaich, Rannoch, Perth, MS. ♀♀ 3rd July 1962, at 1,500 ft. on Schiehallion, Rannoch, Perth, MS. ♀ 7th July 1962, Black Wood, towards Camhouran, Rannoch, Perth, MS.

The Yerbury specimens recorded by Verrall were caught in June at flowers of *Rubus chamaemorus,* while I found the species at flowers of *Potentilla erecta.* On Schiehallion, *M. dubium* occurred alongside one of the burns (Tempar burn) in boggy moorland. Boggy moorland was again the habitat at the other two localities, though the Black Wood specimen was found at a much lower altitude, just above the shore of L. Rannoch. One can only guess that *M. dubium* is more widely distributed in the British Isles than the above records suggest, but the Irish specimens of *"M. mellinum* v. *dubium"* referred to in Speight *et al* (1975) are all melanic females of *M. mellinum. M. dubium* would appear to be a univoltine, montane species. Its larvae are undescribed.

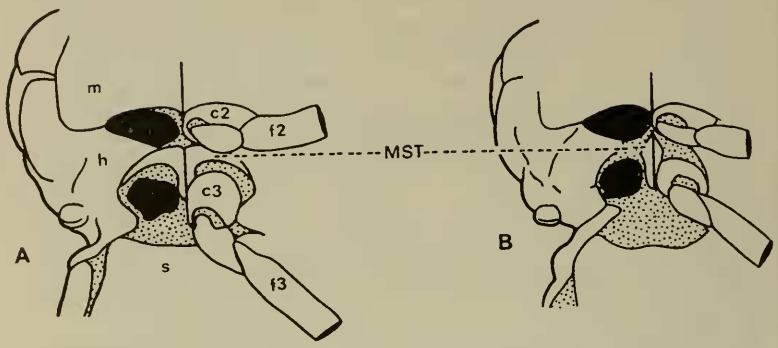

FIGURE 1: Thorax, underside of pterothoracic region in (A) *Platycheirus albimanus* ♀, (B) *Melanostoma scalare* ♀, showing the metasternal bridge characterising *Platycheirus* species, but absent in *Melanostoma* species.
c2=coxa of mid leg; c3=coxa of hind leg; f2=femur of mid leg; f3=femur of hind leg; h=hypopleuron; m=mesopleuron; MST=metasternum; s=first visible abdominal sternite.
The legs have been removed on the right side of each specimen, leaving the coxal cavities, shown in black. On the left side of each specimen the leg bases are intact, but the femora have been cut off part-way along their length. The outside edge of the thorax and base of the abdomen is only shown on the right side of each specimen (right side of each specimen=left side of each diagram, since specimens are shown inverted).

Acknowledgements

I am grateful to John Ismay for arranging for me a loan of material from the Verrall-Collin collection, housed in the Hope Department at Oxford.

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